REMARKS

Upon entry of this amendment, claims 1-21 will be pending in the present application.

I. Claims 1-21 Are Novel

Claims 1-21 have been rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 6,773,629 ("the Le Mercier patent"). Applicants traverse the rejection and respectfully request it be reversed.

For a claimed invention to be anticipated, a single reference must teach all of the aspects of the claimed invention either explicitly or implicitly. The Office alleges that the Le Mercier patent teaches an alkaline earth metal thiogallate phosphor on a dopant having an AB_2S_4 phase and a B_2S_3 phase where A is an alkaline earth metal, such as Ca or Sr, B is Ga, and the dopant may be Eu^{2+}. *See* point 7 of Office Action dated 07/24/2006. The Office further alleges that the Le Mercier patent discloses that its phosphor: (1) can be used in a phosphor-converted light-emitting diode where the excitation may be between 350 nm and 470 nm, (2) is formed in a hydrogen sulfide atmosphere, (3) is produced from a mixture of A, B and activator where the ratio of B/(A+activator) is 2.06-2.25, and (4) can be written as $CaGa_2S_4:yEu^{+2}$:0.06-0.25 Ga_2S_3 where y is at most 0.1. Then, the Office alleges the Le Mercier patent reads on the instant claims when x is 1 in the instant claims. *Id.* However, the Office is respectfully mistaken that the Le Mercier patent anticipates the instant claims.

The Le Mercier patent cannot anticipate the instant claims because Le Mercier does not teach all of the aspects of the instant claims. For example, instant Claim 1 recites a light emitting device comprising a light output, a light source that produces light having wavelengths of 530 nm or less, and a wavelength transformer located between the light source and the light output that effectively increases light at the light output, the light having a wavelength between 535 nm and 560 nm, where the wavelength transformer comprises $Sr_{1-x}Ca_xGa_2S_4:yEu^{2+}\bullet zGa_2S_3$ where x is 0.0001 to 1, y is a value defining sufficient Eu^{2+} to provide luminescent emission, and z is 0.0001 to 0.2 based on the mole amount of $Sr_xCa_{1-x}Ga_2S_4$.

On the other hand, although the Le Mercier patent teaches a compound having an AB_2S_4 phase and a B_2S_3 phase where A is an alkaline earth metal, B is Al, Ga, In or S, and the dopant is one capable of giving the compound luminescence properties, such as Eu^{2+}, where the B/(A+activator) atomic ratio is from 2.06 to 2.25 (*see e.g.,* Abstract and column 2, lines 21-22 & 39-40), the Le Mercier patent only discloses that such compound can be used in photoluminescent devices by stating as a sole example a phosphor-converted light-emitting diode where the excitation may be between 350 nm and 470 nm. *See e.g.,* column 6, lines 11-14, 19-21. Yet the Le Mercier patent fails to teach explicitly or implicitly every aspect of the light emitting device of instant Claim 1 - namely, the light output, the light source and the wavelength transformer, as recited above. Consequently, the Le Mercier patent does not anticipate instant Claim 1 and thus, instant Claim 1 is novel.

Claims 2-8, which also have been rejected over the Le Mercier patent as allegedly being anticipated, are patently distinguishable over the Le Mercier patent because of their dependency from instant Claim 1 and the foregoing reasons.

Moreover, the Le Mercier patent cannot anticipate instant Claims 9-21 because the Le Mercier patent does not teach all the aspects of these method claims. For example, instant Claim 9 recites a method of making a strontium calcium thiogallate phosphor of formula $Sr_{1-x}Ca_xGa_2S_4:yEu^{2+}\bullet zGa_2S_3$ where x is 0.0001 to 1, y is a value defining sufficient Eu^{2+} to provide luminescent emission, and z is 0.0001 to 0.2 based on the mole amount of $Sr_{1-x}Ca_xGa_2S_4$, the method comprising forming a composition of sulfate salts of gallium, divalent europium, calcium and, if x is not 1, strontium, and firing the composition under hydrogen sulfide. Thus, instant Claim 9 is a method of making a phosphor of a specific formula by creating a composition from the precursors of the phosphor and then heating the composition under hydrogen sulfide.

By contrast, the Le Mercier patent teaches a method of preparing a compound having an AB_2S_4 phase and a B_2S_3 phase where A is an alkaline earth metal and B is Al, Ga, In or S with an activator imparting luminescent properties, where the B/(A+activator) atomic ratio is from 2.06 to 2.25 by forming a solution or suspension containing salts or

sols of A, B and activator, spray-drying the solution or suspension to provide a product and then sulphurizing the product. *See e.g.,* Abstract, column 1, lines 34-42, column 3, lines 27-29 & 42-43, column 5, lines 13-14, and Claim 3. That is to say, the Le Mercier patent teaches a method of preparing a phosphor of a generic formula, which a phosphor of instant Claim 9 can be a species, such as $CaGa_2S_4:yEu^{+2}$ Ga_2S_3, when x is 1.

However, a genus does not always anticipate a species within that genus. *See Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.,* 868 F.2d 1251, 1262, 9 U.S.P.Q.2d 1962, 1970 (Fed. Cir. 1989); *see also, In re Meyer,* 599 F.2d 1026, 1031, 202 U.S.P.Q. 175, 179 (C.C.P.A. 1979) (finding that the prior art genus did not "identically disclose or describe, within the meaning of section 102" the claimed species "since the genus would include an untold number of species"). A prior art genus will anticipate a claimed species within that prior art genus that is not expressly disclosed, if one of ordinary skill in the art "would immediately envisage" the claimed species from the prior art genus. *See In re Petering,* 301 F.2d 676, 682, 133 U.S.P.Q. 275, 280 (C.C.P.A. 1962); *In re Schaumann,* 572 F.2d 312, 316-17, 197 U.S.P.Q. 5, 9 (C.C.P.A. 1978). Yet, the claimed species is not anticipated when the claimed species is not "expressly identif[ied]" by the prior art reference. *See Pfizer v. Ranbaxy Labs.,* 405 F. Supp.2d 495, 2005 WL 3454227+ *19 (D. Del. 2005).

Accordingly, the Le Mercier patent fails to teach a method for making the species phosphor of formula $Sr_{1-x}Ca_xGa_2S_4:yEu^{2+}\bullet zGa_2S_3$ where x is 0.0001 to 1, y is a value defining sufficient Eu^{2+} to provide luminescent emission, and z is 0.0001 to 0.2 based on the mole amount of $Sr_{1-x}Ca_xGa_2S_4$ of instant Claim 9. In fact, the Le Mercier patent is silent, *i.e.,* does not "expressly identify," the claimed species of instant Claim 9, including $CaGa_2S_4:yEu^{+2}$ Ga_2S_3, when x is 1. Additionally, the Le Mercier patent does not identically disclose or describe the claimed species of instant Claim 9 because the genus does not include a sufficiently limited number of species. Therefore, the Le Mercier patent fails to cause one of ordinary skill in the art to immediately envisage the claimed species of formula $CaGa_2S_4:yEu^{+2}$ Ga_2S_3, when x is 1, much less of formula $Sr_{1-x}Ca_xGa_2S_4:yEu^{2+}\bullet zGa_2S_3$ where x is 0.0001 to 1, y is a value defining sufficient Eu^{2+}

to provide luminescent emission, and z is 0.0001 to 0.2 based on the mole amount of $Sr_{1-x}Ca_xGa_2S_4$ of instant Claim 9. Consequently, the Le Mercier patent does not teach the claimed species phosphor of instant Claim 9, and thus, does not teach every aspect of instant Claim 9. Thus, instant Claim 9 is novel.

Because the Le Mercier patent does not teach every aspect of instant Claim 9 (*see supra*), the Office's assertions regarding the Le Mercier patent's disclosure of forming the mixture under hydrogen sulfide at between 600-1000 °C with an atomic ratio of B/(A+activator) of 2.06-2.25, which apparently are directed towards other aspects of instant method Claim 9, as further basis for anticipation of these claims is moot.

Instant Claims 10-21 also are not anticipated by the Le Mercier patent because of their dependency from instant Claim 9 and the foregoing reasons.

For the foregoing reasons, instant Claims 1-21 are patentable.

Applicant respectfully submits that the instant application is in condition for allowance. An early Notice of Allowance is earnestly solicited. Applicant invites the Office to contact the undersigned to discuss any outstanding matters. All correspondence should continue to be forwarded to our address below.

Respectfully submitted,
LOWENSTEIN SANDLER P.C.
Attorneys for Applicants

By: 

Margaret M. Buck
Reg. No. 54,010
Direct Tel.: 973-597-6162
General Tel.: 973-597-2500

Docket Administrator
LOWENSTEIN SANDLER P.C.
65 Livingston Avenue
Roseland, New Jersey 07068-1791